

Prof. Lieb's Seminar, Monday 11 Feb. 1974 8pm

Time and passage.

1. Where does physics end and philosophy begin? Or is it the other way around?
2. Dialogue and discussion. Philosophers and linguists employ fixed physical notions just as physicists use language and philosophy. Physics is not subject matter but a way of seeing.
3. Passage of time involves some use of a clock: maybe ones pulse rate, or the sun, or the stomach or the deterioration of a locality ... But without a clock there is no time.
4. Time is the dissociation and reassembling of a world picture, a series of companions, shadow of a tree, hands of a clock, elevation of the sun or stars. Comparison of configurations.
5. Time in mechanics. Lawfulness: and the past and future are contained in the present position and momentum. No history, no novelty. No freedom. [only forces are "physical", not change of laws by volition.]
6. Essentially the same in all mechanics, quantum, many-body or anything else. Problem of irreversibility and approach to equilibrium in statistical mechanics. Temporal evolution as a canonical transform. Change of frame. The relativity groups.
7. Thermodynamics and change. Aging. Second law. Increase of entropy. No folition yet.
8. Stochastic notions. Chance. Probabilistic notions. Counters. Prissm processes. Fluct...? Brownian motion.

9. Intelligence, grace, volition, knowing.
10. Is time linear or circular? Compact or noncompact? cyclic? (Could thermodynamics be, like parallax, an item of perspective?) Nataraja and the cosmic dance.
11. Models of space-time. Cosmologies. Metrically.
12. Is there one time or many? Is there one world or many? Is not the world dependent on what you choose and what you ignore?
13. Multiple times in personal experience, “You relive the past”, “you foresee the future”.
14. Problem of measurement, experiment and delimitation of knowledge. Everyone as a theoretical physicist.